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REMARKS

In the Office Action dated September 17, 2002, the Examiner objects to the drawing. The Examiner rejects claims 16-31 under 35 U.S.C. § 112, second paragraph and rejects claims 16-21, 23-29 and 31 under 35 U.S.C. § 103(a). The Applicant gratefully acknowledges the indication of allowable subject matter in claims 22 and 20. In this Amendment, claims 16-31 have been amended, and claims 32-41 have been added. After entry of this Amendment, claims 16-41 are pending in the application. For the reasons set forth herein, claims 16-41 are clear and definite and allowable over the prior art of record. Reconsideration is respectfully requested.

The Examiner objects to the drawing as failing to comply with 37 C.F.R. 1.83(a), which requires that the drawing show every feature of the invention specified in the claims. The charcoal in claim 30 is shown in Fig. 1 with reference number 15'. Withdrawal of the Examiner's objection to the drawing is respectfully requested. The Applicant also requests the Examiner's approval of changes to the Substitute Specification noted herein. These changes merely correct typographical errors in the text and some idiomatic errors introduced during translation. It is respectfully submitted that these changes add no new matter to the application as originally filed.

The Examiner rejects claims 16-31 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicant regards as the invention. With respect to all of the claims, the Examiner states that the construction "characterized in that . . ." is clumsy, vague syntax and should be changed. Only claim 16 contains this phrase, which has been changed. The remainder of claims 17-31 use the transitional phrase characterized by, which is recognized as an acceptable transition phrase in M.P.E.P. 2111.03. However, since the Applicant is making additional clarifying changes to the claims as described in more detail herein, the phrase "characterized by" has been replaced in each of claims 17-31.

The Examiner also rejects claim 16 under 35 U.S.C. § 112, second paragraph, stating that the first and second radial ends is not clear as they are axial to each other. The Applicant has clarified that the coil has a first end and a second end axially-spaced from the first end. The Examiner also states that the recitations "two parts directly mounted on each other" and

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the "frame is sealed" are vague. These phrases have been removed from claim 16. Finally, the Examiner states that "two components transversally assembled one on each other" is indefinite and vague. The Applicant has clarified this phrase to more clearly indicate what is meant by stating that the two parts are directly mounted to each other to form an area of contact perpendicular to a rotational axis of the rotor. To impart additional clarity to claim 16, the claim has been amended to more closely conform to U.S. practice by incorporating relevant elements of the preamble in the body of the claim.

The Examiner rejects claim 16's dependent claims 17, 18, 20, 27 and 28 under 35 U.S.C. § 112, second paragraph. With respect to claim 17, the phrase "end wall enveloping nearer the ends of the coil" has been clarified to state that the respective end walls envelope the ends of the coil, the first end and the second end being in the shape of buns. Claim 18 now more clearly states that the respective end walls of the two parts have a central, bowl-shaped portion. The Applicant has adopted the Examiner's proposed correction to claim 20, in addition to making a minor grammatical change. Claim 27 has been changed to conform to the changes to claim 16, to remove the phrase "of pieces between them" and to include the feature that the assembly flange is annular. Finally, claim 28 includes a position of the lug, stating that at least one of the flanges has at least one fixation lug in a plane parallel to the rotational axis.

The Examiner rejects claim 23 under 35 U.S.C. § 112, second paragraph, based upon various phrases in the claim. The phrase "its exterior elements" has been replaced with "an exterior surface" to provide antecedent basis. The Applicant has also amended claim 23 to state that at least one of the two parts of the frame includes elements on an exterior surface that contribute to an increase in thermal exchange with the ambient air. The improvement of thermal exchanges so that heat from the motor is removed is a goal of the invention (see [0008]), and an increase in thermal exchange with the ambient air furthers this goal. Conforming changes have been made to its dependent claims 24 and 25.

The Examiner also rejects claim 29 under 35 U.S.C. § 112, second paragraph, asking what the adjective "closing" means and to what the "other piece [is] attached." Claim 29 now describes the motor of claim 16 wherein one of the two parts of the frame has the form of a closing plate on which the other of the two parts is attached. The specification clearly shows in

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Figs. 4 and 5 and describes in paragraph [0047] what is meant by a closing plate. A closing plate what the Applicant has chosen to call one embodiment of a part of the frame that does not have a cylindrical portion extending axially toward the other part of the frame.

It is respectfully submitted that claim 16 and its dependent claims 17-31 are clear and definite and meet the requirements of 35 U.S.C. § 112, second paragraph.

In addition to these changes, the Applicant has made addition changes to the remainder of the dependent claims 19, 21 and 26 to clarify the language and to conform to the changes to independent claim 16. In claim 19, the antecedent basis of material has been clarified. In claim 21, antecedent basis has been changed and the word "or" has been removed so that the claim more distinctly specifies that a material of the two parts is at least one of a magnetic material and a magnetizable material. Claim 26 has been clarified to indicate that the end wall referred to is the same as that in claim 16 and to more specifically define the radial orientation portion. In claim 26, each of the two pieces of the frame includes its respective end wall and a cylindrical portion extending axially toward the area of contact.

The Examiner rejects claims 22 and 30, but indicates that they would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph, and to include the features of claim 16, from which each depends. Each claim has been so amended to include claim 16 with the changes previously described. In addition, the additional features of claims 22 and 30 have been amended to conform to the changes to claim 16. The Examiner further rejects claim 22 under 35 U.S.C. § 112, second paragraph. The Examiner's interpretation of claim 22 is partly correct; claim 22 has been amended to state that the two parts of the frame includes at least one part of a gear box casing of an actuator driven by the motor. It is respectfully submitted that the changes to claims 22 and 30 do not affect the indication of allowable subject matter and that the claims are allowable as they meet the requirements of 35 U.S.C. § 112, second paragraph.

The Examiner rejects claims 16-21, 26, 29 and 31 under 35 U.S.C. § 103(a) as being unpatentable over Vacha (US 2,598,623). The Examiner states that Vacha differs from claim 16 and its dependent claims in that the hollow frame does not comprise two parts directly mounted on each other, but rather three parts directly mounted on each other. The Examiner further states that integrating previously separate elements such as the shell 81 of Vacha with an

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end wall/casting 17 to form a frame comprising two parts would have been obvious to one having ordinary skill in the art since integration of parts has been held to involve ordinary skill, citing In re Larson, 144 U.S.P.Q. 347 (C.C.P.A. 1965). Regarding claims 17 and 18, the Examiner states that changes in shape to the enveloping portion of the end walls/castings in Vacha would have been obvious because shape changes have been held to involve ordinary skill, citing In re Dailey, 149 U.S.P.Q. 47 (C.C.P.A. 1966). Regarding claims 19-21 and 31, the Examiner states that choice of a preferred material on the basis of its suitability for the intended use has been held to be within the general skill of a worker in the art, citing In re Leshin, 125 U.S.P.Q. 416 (C.C.P.A. 1960).

With respect to independent claim 16, it is respectfully submitted that even if the integration of parts were within the level of skill of one in the art, that is not dispositive of the issue here. The issue is whether it would have been obvious to one of skill in the art at the time the invention was made to modify Vacha as suggested. The Applicant submits that it is not. The inclusion of a outer shell 81 as a separate element from the housing elements 16 and 17 is critical to the invention of Vacha. The stator design of Vacha, including the outer shell 81, hermetically seals the entire field structure of the motor independent of the rotor assembly and independent of the housing elements 16 and 17. (Vacha, col. 4, ll. 44-71). Changing this structure would eliminate an important component in the novel construction of the stator assembly that is the major teaching of Vacha. (Vacha, col. 3, ll. 23-27; Fig. 6 and claim 1). Unlike In re Larson, this is not a case where the integration of parts leaves the remaining structure unaffected; here, the utility of the stator design taught by Vacha would be destroyed. No one of skill in the art with knowledge of Vacha's teachings would find motivation to alter Vacha as suggested by the Examiner. The Applicant respectfully submits that the invention of claim 16 and its dependant claims 17-21, 26, 29 and 31 is neither taught nor suggested by Vacha.

The Examiner rejects claims 23-25 under 35 U.S.C. § 103(a), stating that it would have been obvious to provide the cooling fins of Onjanow on the exterior of the end walls of Vacha for heat transfer. Regarding claim 25, the Examiner refers the Applicant to the fixation lugs 91 in Vacha. Initially, it is respectfully submitted that Onjanow fails to cure the deficiency noted with respect to Vacha above. Specifically, even if it were appropriate or otherwise

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permissible to combine Onjanow with Vacha, the combination still fails to teach or suggest the feature of claim 16, from which claims 23-25 depend, that the two parts are directly mounted to each other to form an area of contact perpendicular to a rotational axis of the rotor.

Further, even if cooling were a goal in Vacha, there would be no teaching or suggestion for carrying cooling fins on at least one of the two parts as taught by the Applicant in claim 24. To correspond to Onjanow, the heat dissipating fins 24 would be located on the outer shell 81 of the stator assembly of Vacha, not on at least one of the two parts.

With respect to claim 25, the Examiner's rejection fails to acknowledge the Applicant's intended meaning of fixation lug as illustrated in the drawing figures and as described in the specification. The Applicant is using the common meaning of lug as a handle or projection in the shape of an ear, which is shown in Fig. 1 as element 13. According to the meaning of fixation lug, neither Vacha nor Onjanow nor the combination teaches such a feature. Further, such a feature would not be obvious to include in the dynamoelectric machine of Vacha because it is a goal of Vacha that the machine be no larger in diameter than the small instrument to which it is driving. (Vacha, col. 1, ll. 11-18). A projection in the form of a fixation lug would be an undesirable addition to Vacha. For the foregoing reasons, the features of claim 23 and its dependent claims 24 and 25 are not taught or suggested by the combination of Vacha and Onjanow.

The Examiner rejects claims 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Vacha in view of Yabushita et al. The Examiner states that Yabushita et al. teaches a hermetically sealed motor including housing pieces 111-113 secured by flanges comprising annular projections 15a/16a formed at respective outer peripheries of the opening end surfaces of the pieces forming a joint whereby the housing pieces are connected to each other in sealed manner. The Examiner further states that it would have been obvious to employ the flange connection of Yabushita et al. to connect the housing parts of Vacha since such a connection would have been desirable to seal the housing pieces together.

It is respectfully submitted that Yabushita et al., like Onjanow, fails to cure the deficiency noted with respect to Vacha above. Even if it were appropriate or otherwise permissible to combine Yabushita et al. with Vacha, the combination still fails to teach or suggest

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the feature of claim 16, from which claims 27 and 28 depend, that the two parts are directly mounted to each other to form an area of contact perpendicular to a rotational axis of the rotor. In addition, and as noted with respect to claim 25, Vacha does not teach or suggest a fixation lug as commonly defined and as used by the Applicant in claim 28. Even if Yabushita et al. taught or suggested a fixation lug, the combination of Vacha and Yabushita et al. would not teach or suggest an annular assembly flange forming the area of contact wherein at least one of the flanges has at least one fixation lug in a plane parallel to the rotational axis.

With this Amendment, new claims 32-41 have been added. Claim 32 depends from claim 16 and includes the feature previously included in claim 16 that the frame is sealed, clarifying that the frame is sealed so as to be water- and dust-proof. Claim 33 depends from claim 16 and includes the feature that one of the two parts has a cylindrical portion extending axially from its respective end wall toward the other of the two parts, the cylindrical portion ending in a radially-extending flange sealingly engaged with an annular portion of the other of the two parts. Claim 34 depends from claim 33 and includes the additional feature that the annular portion of the other of the two parts is one of a portion of its respective end wall and a radially-extending flange extending from a cylindrical portion of the other of the two parts. Claim 35 also depends from claim 35, adding the feature that a plurality of cooling fins extend radially from the cylindrical portion. Claims 36-38 and claims 39-41 include the features of claims 33-35, except that claim 36 depends from claim 22, and claim 39 depends from claim 30. It is respectfully submitted that these features are neither taught nor suggested by the cited references, taken either singly or in any permissible combination.

It is respectfully submitted that this Amendment traverses and overcomes all of the Examiner's objections and rejections to the application as originally filed. It is further submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Reconsideration of the application as amended is requested. It is respectfully submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

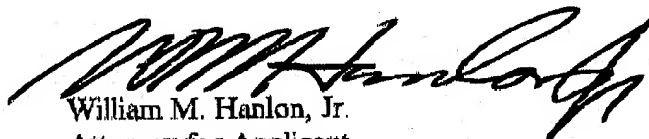
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If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the Substitute Specification:**

Please replace paragraphs [0001] - [0002] with the following paragraphs:

The present invention concerns electric motors [for electric motors] used [in the] with a motor vehicle actuator.

The invention advantageously finds use in closed electric motors that dissipate heat energy, such as wiper motors, clutch controls, the [windshields] windshield motors of motor vehicles, and electric control motors of sunroofs or of seats. The invention applies to electric motors of the synchronous type, asynchronous types, or others.

Please replace paragraph [0009] with the following paragraph:

The invention proposes such an electric motor, to be used in a motor vehicle, that comprises a rotor provided with a coil having first and second radial ends, and mounted [in rotating] rotatingly in a hollow frame formed of two hollow parts directly mounted on each other and having end walls[, the]. The two parts [being] are made of good heat conducting material, and the frame [bearing] bears induction means[, characterized by the]. The frame is sealed, and [by] the two parts [being] are two pieces assembled transversally one onto the other[, and by the]. The end wall of each part [being] is continuously adjacent to one of the first and second ends of the coil.

Please replace paragraph [0016] with the following paragraph:

the heat conducting material is not magnetic and is advantageously chosen from the group containing "zamac," aluminum, and magnesium[,] in order to reduce the weight of the motor and to facilitate its creation via casting[.];

Please replace paragraph [0019] with the following paragraph:

at least one of the two pieces of the frame comprises an end of the wall and [an] a radial orientation portion that contains, on the outside, elements that contribute to the increase in thermal changes with ambient air;

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Please replace paragraph [0022] with the following paragraph:

at least one or the other of the two pieces of the frame comprises a wall end and circumferential part; and

Please replace paragraph [0030] with the following paragraph:

The electric motor that is represented in Fig. 1 is a closed direct current electric motor, that comprises a hollow frame 1, as well as a coiled rotor 2 carried by a shaft 3 mounting rotating between two bearings 4, 5 mounted in the frame 1, made up of ball bearings in this method of production. The shaft 3 carries between these two [bearing] bearings 4, 5 a packet of coupled sheet metal 20, each having notches in the shape of a V in order to make up radial grooves 30. These grooves are designed to wrap around several conductor threads, here in copper, in order to form a coil 21. This coil thus has, projecting in relation to the packet 20, and at each of its ends, a first and second radial end, 22 and 23, in the shape of buns.

Please replace paragraphs [0033] to [0037] with the following paragraphs:

The two pieces 6, 7 each have a ring-shaped portion 6a, 7a with radial orientation [6a, 7a], the interior surface of which is of a cylindrical shape, and a bottom portion 6b, 7b, with transversal orientation, that ends the portion 6a, 7a at an end. The bottom 6b receives the bearing 4 that makes the rear bearing; and the bottom 7b is crossed by the shaft 3 and is prolonged by an overhang 16 that receives the front bearing 5, as well as the manifold 14 of the motor. It also has lodgings 15 for charcoal 15'.

The frame 1 carries a ring inductor 8 and magnets 9. In order to do this, the frame receives in its interior a tubular ring, or tube, 8[, that is,] in a magnetic or magnetizable material, for example, soft iron.

The frame 1 also receives permanent [bearing] magnets 9 that are placed on the interior of the tube 8 and the magnetic field of which surrounds the tube 8. A weak air-gap is placed between the packet of steel 20 and the magnets 9, allowing the increase of the motor's performance.

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The tube 8 and the magnets 9 are held in place via a built-in in the frame 1 by interior holes 10 that have bottoms 6b, 7b and in which the edges of the tube 8 and the [bearings] magnets 9 are received. This built-in allows, via cooperation, the shapes to free themselves from springs normally used for assembling the bearings of the tube. In addition, the replacement of these springs by the heat conducting material between the holes 10 allows the more efficient removal of heat because the coil of the conductor thread in the grooves 30 are adjacent to this material that advantageously reaches radially from one bottom 6b to the other 7b.

The bottoms 6b, 7b, each transversally making up an end wall for the piece 6, 7, respectively, also having an interior with a bowl shape that envelopes the radial ends 22, 23 of the coil 21 of the rotor 2. These ends [21,] 22, 23 are according to the invention, continually adjacent to the bottoms 6b, 7b, which allows the minimization of the space between these bottoms 6b, 7b and the ends 22, 23. As a consequence, the radiation energy by the ends 22, 23 is transmitted over the entire frame and removed in an optimized manner.

Please replace paragraph [0039] with the following paragraph:

In addition, the bottoms 6b, 7b of the frame, making up end walls, have centrally the shape of a bowl in order to receive in a complementary manner the buns [2]22, 23 of the coil 21. This arrangement minimizes the distance between the coil and the frame 1, which allows the optimization of the cooling of the inductor by the frame 1.

Please replace paragraph [0041] with the following paragraph:

In addition, the structure described allows the casting of one of the two pieces 6, 7, that make up the frame 1 - and specifically that which defines the front bearing of the motor - in such a way that it is a piece with at least one gear box casing part, the overhang 16, of the actuator to which the motor is associated. Also, the piece that is cast in one piece with at least one gearbox casing part can be in a different material, with a similar magnetic nature or different in relation to the other piece.

Please replace paragraph [0043] with the following paragraph:

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In the example illustrated in Fig. 1, the piece 6 has more than one fixation lug 13 that, other than their mechanical function, also allows the augmentation of the volume of the frame 1 and thus the thermal changes via convection and radiation with the ambient air and via conduction with the support on which the lugs 13 are attached. In addition, the fact that the fixation lugs 13 are placed to the right of the steel packet 20 allows the diminishing the chance of being unbalanced and thus to improve the holding of the rotor 2.

Please replace paragraph [0046] with the following paragraph:

Other production variations of the invention are also very possible. For example, the two pieces 6, 7 of the frame 1 can carry fixation lugs and cooling fins. Each piece can contain at least one fixation lug interrupting the corresponding flange.

Please replace paragraph [0048] with the following paragraph:

Also, the plate carries charcoal (not represented in Figs. [1] 2 to 5) can be placed on the interior of the frame 1 on the bottom 7b of the piece 7. The heat freed by the plate [7are] 7 is also directly removed by the plate 7.

In the claims:

16. (Amended) An electric motor [including] comprising:
a rotor provided with a coil having a first end and a second [radial ends]end
axially-spaced from the first end, [and]the rotor mounted rotatively in a hollow frame formed of
two parts [directly mounted on each other and] having respective end walls, the two parts being
made of a heat conducting material, and the frame carrying induction means, [characterized in that
the frame is sealed, and the two parts are two components transversally assembled one on each
other, and]wherein each of the respective end [wall of each part]walls is continuously adjacent to
one of the first end and the second [ends]end of the coil, and wherein the two parts are directly
mounted to each other to form an area of contact perpendicular to a rotational axis of the rotor.

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17. (Amended) The motor according to claim 16[, characterized by] wherein the respective end walls [enveloping nearer] envelope the ends of the coil, the first end and the second end being in the shape of buns.

18. (Amended) The motor according to claim 17[, characterized by] wherein the respective end walls of the two [pieces are centrally bowl shaped] parts have a central, bowl-shaped portion.

19. (Amended) The motor according to claim 16[, characterized by] wherein [the] a material of the two parts [being] is non-magnetic.

20. (Amended) The motor according to claim 19 [characterized by] wherein the material [being chosen as] is one of "zamac", aluminum, and magnesium.

21. (Amended) The motor according to claim 16[, characterized by] wherein [the] a material of the two parts [being] is at least one of a magnetic [or] material and a magnetizable material.

22. (Amended) [The motor according to claim 16, characterized by] An electric motor comprising:

a rotor provided with a coil having a first end and a second end axially-spaced from the first end, the rotor mounted rotatively in a hollow frame formed of two parts having respective end walls, the two parts being made of a heat conducting material, and the frame carrying induction means, wherein each of the respective end walls is continuously adjacent to one of the first end and the second end of the coil, and wherein the two parts are directly mounted to each other to form an area of contact perpendicular to a rotational axis of the rotor, and wherein one of the two [pieces] parts of the frame [being made up of one piece with] includes at least one part of [a piece of] a gear box casing of an actuator [to which] driven by the motor [corresponds].

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23. (Amended) The motor according to claim 16[, characterized by] wherein at least one of the two [pieces]parts of the frame [including an end wall and a radial orientation portion] includes elements on [its]an exterior [elements] surface that [contributes]contribute to [the]an increase [of the]in thermal [changes]exchange with the ambient air.

24. (Amended) The motor according to claim 23[, characterized by the radial orientation portion carrying] wherein the at least one of the two parts carries cooling fins.

25. (Amended) The motor according to claim 23[, characterized by the] wherein a portion [carrying]of the at least one of the two parts carries a fixation [lugs]lug.

26. (Amended) The motor according to claim 16[, characterized by both] wherein each of the two pieces of the frame [including an] includes its respective end wall and a [radial orientation]cylindrical portion extending axially toward the area of contact.

27. (Amended) The motor according to claim 16[, characterized by each piece having] wherein each of the two parts has an annular assembly flange [of pieces between them]forming the area of contact.

28. (Amended) The motor according to claim 27 [characterized by]wherein at least one of the flanges [is interrupted by] has at least [a]one fixation lug in a plane parallel to the rotational axis.

29. (Amended) The motor according to claim 16[, characterized by] wherein one of the two [pieces]parts of the frame [being]has the form of a closing plate on which the other [piece]of the two parts is attached.

30. (Amended) [The motor according to claim 16, characterized by] An electric motor comprising:

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a rotor provided with a coil having a first end and a second end axially-spaced from the first end, the rotor mounted rotatively in a hollow frame formed of two parts having respective end walls, the two parts being made of a heat conducting material, and the frame carrying induction means, wherein each of the respective end walls is continuously adjacent to one of the first end and the second end of the coil, and wherein the two parts are directly mounted to each other to form an area of contact perpendicular to a rotational axis of the rotor, and wherein a plate carrying charcoal is placed at the interior of the frame on one of the respective end [wall of one of the two pieces]walls.

31. (Amended) The motor according to claim 16[, characterized by] wherein the two [pieces being]parts are made of different materials.

Claims 32-41 have been added.